



## PATENT ABSTRACTS OF JAPAN

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(71) Applicant: TOSHIBA CORP

(72) Inventor: WATANABE FUMIO

## (54) WIRE BREAKAGE DETECTING DEVICE IN MANIPULATOR JOINT

## (57) Abstract:

**PURPOSE:** To surely check the presence of breakage of a signal wire in accordance with a fed-back signal and to surely specify a broken signal wire by successively supplying a wire breakage detecting current to signal wires for a plurality of units, and by successively feeding back the wire breakage detection current from specific signal wires.

**CONSTITUTION:** In a manipulator system used for assembling a space station or the like, a wire breakage detecting part 21 composed of a CPU and the like is provided in a control unit 11. In the case of occurrence of erroneous operation of the control unit 11, the operation of a joint mechanism unit 12 comes to a stop so as to set a wire breakage detection mode. Accordingly, a wire breakage detection current is successively applied to signal wires  $10_1$  to  $10_n$  through the intermediary of buffers  $22_1$  to  $22_n$  and diodes  $D1_1$  to  $D1_n$ , and is

then led to a wire breakage detection wire 23 through diodes  $D2_1$  to  $D2_n$ , resistances  $R1_1$  to  $R1_n$  and diodes  $D3_1$  to  $D3_n$ . Further, it is inputted to first and second comparators 24, 25 in order to compare the same with a set value. In accordance with a result of the comparison, the present of wire breakage among the signal wires  $10_1$  to  $10_n$  is determined.

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